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Turkish version of the patient safety culture survey for community pharmacies: Evaluation of patient safety culture perceptions of pharmacy employees*

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*This study was produced from the master's thesis titled "Turkish Version of the Patient Safety Culture Survey for Community Pharmacies: Evaluation of Patient Safety Culture Perceptions of Pharmacy Employees"

ABSTRACT

Background and Aims: This study adapted the Community Pharmacy Survey on Patient Safety Culture developed by the Agency for Healthcare Research and Quality for independent pharmacies into a Turkish survey and evaluated the perception of patient safety culture of 392 pharmacy employees operating in Çankaya district of Ankara province.

Methods: The method developed by Brislin was used in the adaptation process to Turkey. After ensuring the language validity of the questionnaire, its construct validity was examined through explanatory factor analysis and confirmatory factor analysis. In this descriptive and cross-sectional study, the participants' patient safety culture perception scores and demographic characteristics were compared.

Results: According to the results of the study, the questionnaire, as adapted to Turkish, was found to be a valid, reliable, and usable questionnaire for measuring and evaluating patient safety culture. The highest percentage of positive responses was for "Teamwork" (95.3%), "Staff Training and Skills" (91.7%) and "Physical Space and Environment" (90.6%), while the lowest percentage of positive responses was for "Staffing, Work Pressure and Pace" (56.2%). In this study, it was determined that the perception of patient safety culture was higher in female employees, those with higher education levels, those who were pharmacists, those with more years of employment, and those with less than 60 hours of weekly working hours.

Conclusion: As a result of the findings, it was determined that factors such as working environment, training of employees, work intensity, working hours, and the adequacy of the number of personnel affected the perception of the patient safety culture of independent pharmacists. Therefore, improvements should be made in these areas to improve the patient safety culture in pharmacies.

Keywords: Patient safety, Pharmacy, Reliability and validity, Surveys and questionnaires

INTRODUCTION

According to the Preventing Medication Errors report published by the Institute of Medicine (IOM) in 2006, one and a half million people are injured every year due to medication errors, which are considered among medical errors, and these errors increase medical expenditure costs and decrease productivity (Partin, 2006). 34-56% of medication errors are preventable (AHRQ). In the report, the IOM stated that medical errors are caused by faulty systems and recommended that systems be analysed and redesigned at all levels (Partin, 2006). All measures taken to ensure patient safety in pharmacies are aimed at preventing potential medication errors. Prescribing errors can be detected and prevented not only by nurses but also by pharmacy staff. In a study conducted in the United States, it was reported that prescribing errors detected in 0.3-1.9% of prescriptions were detected and prevented by pharmacists (Dean, Schachter, Vincent, & Barber, 2002). In 2022, WHO presented its third challenge for patient safety as "harmless medicines", aiming to reduce serious preventable harm from medicines by 50% globally in the next 5 years (WHO, 2022).

Medical errors are less common in health systems with well-functioning patient safety. Patient safety starts when an individ-

ual receives healthcare and continues until the need for healthcare is no longer needed (Sayek, 2011). Organisations with a culture of safety are willing to evolve, change, learn from mistakes, and create strategies to prevent accidents (Ovalı, 2010). The Agency for Healthcare Research and Quality (AHRQ) recommends developing safe approaches to ensure a culture of safety, providing employees with environments where they feel comfortable reporting errors, and collaboratively approaching patient safety issues in a multidisciplinary team (AHRQ).

Community pharmacies, which are defined as a type of health facility that provides specific medicines-related services, play an important role in the health system. Community pharmacy workers are recognised as key health professionals who make dynamic and evolving contributions to improving the health of the communities they serve (PGEU, 2019). Crucial but underappreciated in the healthcare system, community pharmacy workers play a vital role in patient safety by ensuring that medicines are used safely by patients (Aboneh, Stone, Lester, & Chui, 2020; Jassim & Jamal; 2021). Community pharmacies have become an integral part of the health system, actively contributing to ensuring patient safety through education, collaboration, accurate dispensing, monitoring, and implementation of safety protocols (Khatri *et al.*, 2024; Sharma, Kumar, Sharma, & Verma 2024). Previous studies on safety culture assessments have largely focused on hospital settings.

Studies have reported that medication errors are common in community pharmacies, and many are linked to organisational culture (Knudsen, Herborg, Mortensen, Knudsen, & Hellebek, 2007; Odukoya, Stone, & Chui, 2014). Therefore, safety culture assessments may be useful for organisational improvement efforts. Pharmacists' medication dispensing and patient care services increase patients' understanding of their medications and contribute to improving patient safety (American Pharmacists Association).

As of the end of 2019, there were 26 558 independent pharmacies in Turkey, which are primary healthcare institutions where retail sales in the pharmaceutical sector are mostly carried out (Bagcı & Atasever, 2020). According to the Turkish Pharmacist Information System data, the total number of pharmacists in Turkey in 2019 was 37,442, of which 26,177 were independent pharmacists (Turkish Pharmacists Association, 2019). Independent pharmacies sell both prescription and over-the-counter medicines. Today's pharmacy curriculum focuses on patient oriented pharmacy applications and have courses on drug safety , rational drug use and pharmaceutical care which are important features in maintaing patient safey. In addition, in-service training is provided by the Pharmacies Association for community pharmacy employees (Turkish Pharmacists Association). Although there are legislative regulations for ensuring patient safety in public pharmacies, there are no independent pharmacies. However, community pharmacies are inspected at least twice a year by the Turkish Medicines and Medical Devices Agency under the Ministry of Health in terms of the characteristics and qualifications of the place to be used as a pharmacy, supply and storage of medicines, employment of personnel, registration, and disposal (Turkish Medicines and Medical Devices Agency, 2022).

In the literature, no study has evaluated the patient safety culture of community pharmacy employees in Turkey. The aim of this study is to adapt the The Community Pharmacy Survey on Patient Safety Culture (CPSPSC) into Turkish and evaluate the perception of the patient safety culture of pharmacy employees. This study is the first to investigate patient safety culture in community pharmacies in Turkey.

MATERIALS AND METHODS

Study Design and Population

This study is a descriptive and cross-sectional study in terms of determining the perception of patient safety culture of employees working in community pharmacy with CPSPSC adapted into Turkish.

This study was conducted with 392 pharmacy employees who voluntarily agreed to fill out the questionnaire from 598 pharmacies operating in Çankaya district of Ankara, Turkey. Pharmacy pharmacists and non-phaarmacist employees who worked full-time at their current pharmacy for at least 6 months were included in the study. The mean age of the participants was 32.53±7.52 years, 51.3% (n=201) were female, 52.6% (n=206) were high school graduates, and 80.4% (n=315) were working as pharmacist journeymen. Participants had been working in the pharmacy for 7.32±5.91 years and 2.64±3.43 months, with a mean weekly working time of 60.76±6.25 hours (Table 1).

Data Collection

CPSPSC published by the AHRQ in 2012 was used as a data collection tool in this study. The CPSPSC was designed to determine the attitude of community pharmacy employees towards patient safety, to measure their awareness of medication safety, to determine the current state of patient safety culture in the community pharmacy environment, and to determine the steps to be taken to improve this culture (AHRQ). The original questionnaire consisted of 11 headings (Communication About Mistakes, Communication Openness, Communication About Prescriptions Across Shifts, Organisational Learning—Continuous, Improvement, Overall Perceptions of Patient Safety, Patient Counselling, Physical Space and Environment, Response to Mistakes, Staff Training and Skills, Staffing, Work Pressure and Pace, Teamwork) and 36 items. The questions are scored as a five-point Likert scale.

Data were collected face-to-face by the researcher between February and June 2020. Before administering the question-

Table 1. Demographic characteristics of participants

		N	%
Gender	Female	201	51.3
	Male	191	48.7
Educational background	Primary school	0	0.0
	Middle school	7	1.8
	High school	206	52.6
	Associate degree	117	29.8
	Licence	52	13.3
	Postgraduate	10	2.6
Working position in a pharmacy	Pharmacist (Pharmacy manager, Lead person, Responsible pharmacist, staff pharmacist)	56	14.3
	Journeyman pharmacist (journeyman leader, journeyman employee)	315	80.4
	Pharmacy staff	21	5.4

	N	Min	Max	Mean	Ss
Age	392	19.00	66.00	32.53	7.52
Working time in the pharmacy (years)	392	0.00	41.00	7.32	5.91
Working time in the pharmacy (months)	392	0.00	11.00	2.64	3.43
Total working hours per week in the pharmacy (hours)	392	35.00	72.00	60.76	6.25

naire, information about the study was given and the questionnaire was filled out by the participants. Participants were included in the study on a voluntary basis. The average time to complete a questionnaire was 15 minutes.

Adaptation Process of the Questionnaire to Turkish

The original CPSPSC is written in English. The method developed by Brislin (1976) was used in the adaptation process. The pilot study of the adapted Turkish CPSPSC was conducted with 30 pharmacy employees. During the application, the comprehensibility of the questions was discussed, the incomprehensible items were revised, and the final version of the questionnaire was given after making the necessary corrections. The questionnaires of the employees who participated in the pilot study were not included in the analysis. According to the reliability analysis result, the Cronbach alpha value of the survey is 0.896. Accordingly, it was determined that the survey was highly reliable.

Data Analysis

Kaiser-Meyer-Olkin (KMO) and Barlett Sphericity tests were performed to determine whether the questionnaire was suitable for factor analysis. In order to determine the factor structure of the questionnaire, the scatter of the eigenvalues was examined using a Scree Plot graph. However, if the number of factors was more than one, varimax vertical rotation was used to assign items to relevant factors. In the factor analysis process, factor loading values were examined in the process of assigning the questionnaire items to the factors or removing them from the questionnaire. The construct validity of the questionnaire was first examined by explanatory factor analysis (EFA) and then by confirmatory factor analysis (CFA).

In order to determine the perceptions and levels of patient safety culture of independent pharmacy employees, correlations were calculated with the percentages of positive responses over 11 domains determined by AHRQ. Among the comparison tests, t and ANOVA tests were used. The difference scores according to categorical variables with 2 groups was analysed by t-test, and the difference of scores according to categorical variables with 3 or more groups was analysed by ANOVA. In the results found to be significant in the ANOVA test, each group was examined using the Bonferroni test from the post-hoc analysis, and pairwise comparisons were made in the ANOVA.

Ethics Approval

Ethical approval for the study was obtained from the Ankara Yildirim Beyazit University's ethics committee (16.10.2019 and 22 number). Permission was obtained from the AHRQ to adapt the questionnaire to Turkish and use it as a measurement tool in Turkey. Permission was obtained from the Ankara Chamber of Pharmacists to apply the questionnaire to independent pharmacies in Ankara. Participation in the study was voluntary, and participants were informed about the study and provided verbal consent.

RESULTS

Validity Analysis Results

In factor analysis, the KMO test was used to determine whether the sample size was sufficient, and Barlett's sphericity test was used to determine whether the data were normally distributed. The total KMO value of the questionnaire was calculated as 0.839 (KMO>0.500) and the chi-square value because of Barlett's test was calculated as 8440.776 and found statistically significant (p<0.05). According to the results of the KMO and Bartlett's test, it was determined that the data were suitable for factor analysis.

The maximum Cronbach alpha coefficient in the survey is 0.941 and belongs to the "Working Environment and Staff Competencies" sub-dimension. The minimum Cronbach alpha value is 0.759 and belongs to the "Teamwork and Communication" sub-dimension. The Cronbach alpha value of the "Information Sharing Between Shifts" sub-dimension is 0.886. The Cronbach alpha value of the "Attitude Towards Errors" sub-dimension is 0.859. According to the reliability analysis result, the Cronbach alpha value of the survey is 0.896. Accordingly, it was determined that the survey was highly reliable.

After ensuring the Turkish language validity of the questionnaire, its construct validity was examined using EFA and CFA. In the factor analysis process, factor load values were examined when assigning survey items to factors or removing them from the survey. Items with factor loadings less than 0.300 were excluded from the analysis. Since the factor loading was less than 0.300, articles B9, B16, C3 and C8; B1 due to overlapping. Items were not included in the analysis. After the analysis, a four-factor and 31-item structure was obtained. The factors were named as Working Environment and Staff Competencies (A1-A2-A2-A3-A3-A4-A4-A5-A5-A6-A7-A8-A9-A10), Information Sharing Between Shifts (B2-B3-B4-B4-B5-B6-B7-B8-B10-B11), Teamwork and Communication (B12-B14-B15), and Attitude Towards Errors (C1-C2-C4-C5-C6-C7- C9-C10) (Table 2).

The factor loadings of the questionnaire after CFA ranged between 0.522-0.899. Item B13 was excluded from the analysis because of its low factor loading (Table 3).

When all the fit indices calculated in the CFA analysis were examined, the questionnaire showed acceptable fit indices. After EFA and CFA, it was determined that the questionnaire consisted of four factors and 30 items, and a validity analysis was completed.

Reliability Analysis Results

The internal consistency method was used to determine questionnaire reliability. According to the results of the reliability analysis, the total internal consistency coefficient of the questionnaire was found to be highly reliable, with a Cronbach's alpha value of 0.896. According to this result, we determined that the reliability values of the questionnaire and the original questionnaire were similar (Table 4).

The average positive response percentages for the 11 topics in the questionnaire were determined (Table 6). Accordingly, "Teamwork" (95.3%), "Staff Training and Skills" (91.7%) and "Physical Space and Environment" (90.6%) had the highest percentage of positive responses. The lowest percentage of positive responses belongs to "Staffing, Work Pressure and Pace" with 56.2% (Table 5).

Correlation Results

Participants' patient safety culture perception scores were analysed in terms of demographic characteristics. Only statistically significant results were presented (Table 7). A statistically significant difference was found between men and women, between groups with different educational status, between groups with different working hours in pharmacy, between groups with different total weekly working hours, and between groups with different positions in terms of " Information Sharing Between Shifts" (p<0.05). Accordingly, the mean score of women was higher than that of men. The mean score of those with more than 10 years of employment was the highest, while the mean score of those with 7-10 years of employment was the lowest.

A statistically significant difference was found between groups with different educational statuses and groups with different total weekly working hours in terms of "Communication and Functioning Total" (p<0.05). Accordingly, the mean score of those with undergraduate/graduate degrees was the highest, while the mean score decreased as the level of education decreased (Table 6).

A statistically significant difference was found between the groups with different total weekly working hours in terms of "Teamwork and Communication" (p<0.05). Accordingly, although the mean score of employees who worked less than 60 h was the highest, the mean decreased as the duration increased (Table 6).

A statistically significant difference was found between the groups with different positions in terms of "Communication and Operation Dimension" "Information Sharing Between Shifts" and "Attitude Towards Errors" (p<0.05). In terms of, "Communication and Operation Dimension" "Information Sharing Between Shifts" the average score of pharmacists is the highest, while the average of journeyman pharmacist is the smallest. In "Recording of Errors", the average score of pharmacy staff is the highest, while the average of journeyman pharmacist is the smallest. (Table 6).

Table 2. Factor structure of the survey after EFA

Factor 1: Working Environment and Staff Staff Competencies (Cronbach α = 0.941)	Factor 1	Factor 2	Factor 3	Factor 4	Explained variance ratio
(A4) The staff in this pharmacy clearly understood their roles and responsibilities.	.902				
(A6) The staff in this pharmacy have the skills they should do their jobs well.	.889				
(A3) Technicians in this pharmacy receive the training they should perform their jobs.	.854				
(A9) The staff will work together as an effective team	.838				67.270
(A2) The staff treat each other with respect.	.834				
(A1) This pharmacy is well-organised.	.824				
(A5) This pharmacy is free of clutter.	.808				
(A8) Staff who are new to this pharmacy receive an adequate orientation.	.803				
(A7) The physical layout of this pharmacy supports good workflow.	.780				
(A10) Employees working in the pharmacy receive adequate training.	.640				
Factor 2: Information Sharing Between Shifts (Cronbach α = 0.886)	**Factor 1**	**Factor 2**	**Factor 3**	**Factor 4**	**Explained variance ratio**
(B4) We expect that important prescription information will be exchanged across shifts.		.872			
(B7) Our pharmacists spend enough time talking to patients about how they use their medications.		.792			
(B10) It is easy for staff members to speak up to their supervisors or managers about patient safety concerns. In this pharmacy.		.792			
(B2) We encourage patients to talk to pharmacists about their medications.		.759			
(B5) The staff members feel comfortable asking questions when they are unsure about something.		678			37.033
(B8) Staff at this pharmacy discuss mistakes.		.674			
(B11) Our pharmacists will inform patients about their new prescriptions.		.641			
(B6) Standard procedures are in place for communicating prescription information across shifts.		.571			
(B3) Staff take adequate breaks during shifts.		.566			

Table 2. Continued

Factor 3: Teamwork and Communication (Cronbach α = 0.759)	Factor 1	Factor 2	Factor 3	Factor 4	Explained variance ratio
(B15) In this pharmacy, we discuss ways to prevent mistakes from happening again.			.842		
(B14) The status of problematic prescriptions is well communicated across shifts.			.842		
(B13) When patient safety issues occur at our pharmacy, staff will discuss them with us.			.758		21.995
(B12) We have enough staff to handle the workload.			.556		
Factor 4: Attitude Towards Errors (Cronbach α = 0.859)	Factor 1	Factor 2	Factor 3	Factor 4	Explained variance ratio
(C2) When a mistake occurs, we try to identify the problems in the work process that led to the mistake.				.820	
(C1) The staff are treated fairly when they make mistakes.				.804	
(C6) This pharmacy is good at preventing mistakes.				.764	
(C4) This pharmacy helps staff learn from their mistakes rather than punishing them.				.754	
(C10) Mistakes have led to positive changes in the pharmacy.				.704	
(C5) When the same mistake continues to happen, we change the way we do things.				.651	
(C7) We examine staff actions and how we do things to understand why mistakes happen. This pharmacy.				.625	51.943
(C9) The way we do things in this pharmacy reflects a strong focus on patient safety.				.613	
Total (Cronbach α = .859)					

DISCUSSION

The four-factor structure we obtained as a result of statistical analyses in our questionnaire adaptation study was similar to the study conducted by Aboneh et al (Aboneh et al., 2020). Aboneh et al reported that the original questionnaire was inadequate for the 36-item, 11-factor structure and failed to meet the fit index criteria (Aboneh et al., 2020). The EFA after CFA indicated that a 27-item, 4-factor structure better reflected the dimensions of safety culture in community pharmacies. In a study conducted in China with independent pharmacists, a 7-factor structure was obtained after EFA (Jia et al., 2014). In their study, Rawlings et al. (2018) did not define any correlation as very strong, although all the correlations were positive and most of the correlations were statistically significant. Therefore, the CPSPSC should not be used as a single assessment tool to measure patient safety culture in community pharmacies. In contrast, the 11-factor CPSPSC was used in other studies evaluating the perception of the patient safety culture of community pharmacy employees (Alsaleh et al., 2018; Herner, Rawlings, Swartzendruber, & Delate, 2017; Owusu, Abouelhassan, & Awaisu , 2021; Sivanandy et al., 2016; Yismaw, Tesfaye, Hailu, Tegegn, & Gebreyohannes, 2020). Similar to our study, in a study conducted during the COVID-19 pandemic, it was determined that employees working in Community pharmacies generally had a positive patient safety culture and received significantly higher scores for the dimensions of "Teamwork", "Personnel, Work Pressure and Tempo", "Response to Errors", "Organisational Learning - Continuous Improvement" and "General Perceptions of Patient Safety" (Abu Assab, Jaber, Basheer, Abu Assab, & Al-Atram, 2022). Rapid generalisations about the applications of safety culture dimensions in health services may be misleading. In addition, there may be a different number of constructs in the dimensioning of the questionnaire as practise settings may differ significantly in terms of the norms and working procedures of the organisations, i.e. cultural aspects (Waterson, Griffiths, Stride, Murphy, & Hignett, 2010).

Table 3. Factor loadings of ıtems after CFA

Factor Name	Items	Factor load
Working Environment and Staff Staff Competencies	A4	.817
	A6	.853
	A3	.721
	A9	.899
	A2	.753
	A1	.764
	A5	.742
	A8	.617
	A7	.657
	A10	.591
Information Sharing Between Shifts	B4	.793
	B7	.724
	B10	.721
	B2	.596
	B5	.710
	B8	.669
	B11	.678
	B6	.575
	B3	.522
Teamwork and communication skills	B15	.803
	B14	.851
	B12	.677
Attitude Towards Errors	C2	.795
	C1	.542
	C6	.704
	C4	.701
	C10	.556
	C5	.621
	C7	.659
	C9	.592

Table 4. Internal consistency coefficient and descriptors of the total and subfactors of CPSPSC

Factors	Number of Items	Min.-Max.	Cronbach Alpha	Description	Hydrangea (min.-max.)	Median in 0-100 Survey (Min.-Max.)
Working Environment and Staff Competencies	10	10-50	0.941	High reliability	40(7-50)	80(0-100)
Information Sharing Between Shifts	9	9-45	0.886	High reliability	36(5-45)	80(0-100)
Teamwork and communication skills	3	3-15	0.759	Highly reliable	12(3-15)	75(25-100)
Attitude Towards Errors	8	8-40	0.859	High reliability	32(5-40)	88(0-100)
Total	30	30-150	0.896	High reliability	120(18-150)	84(0-100)

Table 5. Average positive response percentages

Dimensions	Average Positive Response Percentages (%)
Communication About Mistakes	**75.3**
Communication Openness	87.6
Communication About Prescriptions Across Shifts	82.6
Organisational Learning—Continuous Improvement	87.3
Overall Perceptions of Patient Safety	87.6
Patient Counselling	87.3
Physical Space and Environment	90.6
Response to Mistakes	88.7
Staff Training and Skills	91.7
Staffing, work pressure, and pace	56.2
Teamwork	**95.3**

Table 6. Examination of scores in relation to participants' demographic characteristics

Gender		n	Average	ss	t	P
Information Sharing Between Shifts	Female	201	4.11	0.61	2.073	.039*
	Male	191	3.98	0.62		
Educational background		n	Average	ss	F	P
Information Sharing Between Shifts	Middle/High School	213	4.00	0.62	4.471	.012*
	Associate degree	117	4.01	0.60		
	Undergraduate/graduate	62	4.26	0.62		
Working time in the pharmacy		n	Average	ss	F	P
Information Sharing Between Shifts	3 years or less	87	4.04	0.60	3.937	.009*
	4-6 years	128	4.02	0.60		
	7-10 years	72	3.87	0.64		
	More than 10 years	105	4.19	0.61		
Total working hours per week in the pharmacy		n	Average	ss	F	P
Information Sharing Between Shifts	Less than 60 h	55	4.26	0.63	4.068	.018*
	60 h	179	4.02	0.62		
	More than 60 h	158	3.99	0.60		
Teamwork and communication skills	Less than 60 h	55	4.34	0.67	5.848	.003*
	60 h	179	4.03	0.71		
	More than 60 h	158	3.94	0.82		
Communication and Functioning Total	Less than 60 h	55	4.30	0.62	4.068	.002*
	60 h	179	4.02	0.60		
	More than 60 h	158	3.96	0.62		
Working position in a pharmacy		n	Average	ss	F	P
Information Sharing Between Shifts	Pharmacist	56	4.25	0.63	4.501	.012*
	Journeyman pharmacist	315	4.00	0.60		
	Pharmacy staff	21	4.18	0.69		
Communication and Functioning Total	Pharmacist	56	4.21	0.65	3.160	.044*
	Journeyman pharmacist	315	4.00	0.60		
	Pharmacy staff	21	4.13	0.68		
Attitude Towards Errors	Pharmacist	56	2.69	1.38	3.900	.021*
	Journeyman pharmacist	315	2.36	1.46		
	Pharmacy staff	21	3.16	1.47		

*p<0,05

In the AHRQ data, "Patient Counselling" (95%), "Communication Openness" (87%) and "Communication about Errors" (85%) had the highest positive response rates, while " Staffing, Work Pressure and Pace" had the lowest positive response rate of 45%. When the results were compared with the AHRQ data, the positive response rates in our study were higher. In both studies, the lowest positive response rate belongs to " Staffing, Work Pressure and Pace" (56.2%). In our study, "Teamwork" (95.3%), "Staff Training and Skills" (91.7%) and "Physical Space and Environment" (90.6%) had higher positive response rates. The reason for the high perception scores of employees in these dimensions is; the fact that they give more importance to physical space in community pharmacy inspections in Turkey may indicate that teamwork can be good because the employees are personally selected by the pharmacist and that regular in-service training is provided by the Pharmacists' Association. The percentages of positive response in the findings of our study are similar to those of both studies conducted in the USA, China, Malaysia, Qatar, Ethiopia, Saudi Arabia, and Kuwait (Almalki *et al*., 2021; Alsaleh *et al*., 2018; Jia *et al*., 2014; Qwusu *et al*., 2021; Sivanandy *et al*., 2016; Yismaw *et al*. 2020) and the results of the literature review conducted by Kown *et al*. Because of these studies, it was reported that areas with low positive response percentages should be developed and improved to improve the perception of patient safety culture in pharmacies. In a study conducted by Kown *et al* (2023), it was reported that pharmacy employees did not have the staff to handle the workload, were rushed, could not take breaks, and thought that the work could not be completed correctly due to distraction. However, several studies have emphasised the negative effects of workload on patient safety (Kown *et al*; 2023). Independent pharmacy workers should ensure the control of workload by allocating human resources appropriately to improve patient safety.

It was determined that the mean score of the perception of "Information Sharing Between Shifts" culture increased as the educational level of the employees increased. In a study conducted by Owusu *et al* (2021) it was determined that non-pharmacist employees (such as journeymen, interns, trainees) felt a greater sense of urgency when preparing prescriptions than pharmacist employees. This is believed to be related to the level of education. Therefore, this gap can be closed by providing training on patient safety to low-education employees. In a study conducted by Sivanandy *et al* (2016), it was suggested that pharmacists' general perceptions of patient safety could be improved by providing training on the importance and principles of patient safety. Pharmacy employees with more than 10 years of work experience and less than 60 h of weekly work hours had higher communication and functioning culture perception scores. The level of work experience and length of working hours are closely related to the level of patient safety. More work experience provides the ability to effectively manage patient safety issues and control workload. In addition,

employee confidence based on experience can contribute significantly to the development of a patient safety culture (Kown *et al*; 2023). Owusu *et al*. (2021) found that pharmacy workers with six years or more experience had better teamwork and that working 40 h or more per week had a positive effect on patient safety. Therefore, experiential competence is a prerequisite for a positive response to teamwork.

In our study, the mean score for the perception of culture of "Information Sharing Between Shifts" was the highest among those working as pharmacists, while the mean score was the lowest among those working as pharmacist journeymen. Pharmacists have an important role in ensuring patent safety and efficacy in regard to medication use. In addition, the high level of education that pharmacists receive in relation to patients' health care and rational drug use has an important place in the formation of patient safety culture perception before graduation. Similarly, the mean score of the perception of the culture of "Attitude Towards Errors" was the highest among pharmacy staff and the lowest among pharmacist journeymen. In a study conducted by Herner *et al*. (2017), the level of communication regarding errors was found to be statistically higher among pharmacy technicians than among pharmacists. Jia *et al* (2014) found that the positive response rate of highly qualified pharmacists (senior pharmacists) was higher than that of those with a low level of competence in the area of "staffing, work intensity, and speed" (junior pharmacists). In this direction, training programmes on patient safety can be organised for employees with less pharmacy experience and less competence in terms of the position they work in (pharmacist journeyman, employee).

Although this study is important in terms of being the first in Turkey to measure the perception of the patient safety culture of employees working in independent pharmacies, several important limitations should be discussed. First, our study was conducted in one district of one province in Turkey due to time constraints and factors such as cost and transportation. Therefore, it may not reflect the general trends across the country. However, conducting the study in Ankara, Turkey's capital, may yield results that are close to the general trend in Turkey due to its multicultural structure. Second, the findings of this study are limited to those working in independent pharmacies. This does not reflect the perceptions of pharmacy employees operating in public health institutions.

CONCLUSION

Based on the findings obtained because of the validity and reliability study, it was determined that the CPSPSC is a valid and reliable questionnaire with linguistic equivalence and is culturally appropriate for use under Turkish conditions. This study emphasised the importance of pharmacy staff perception in ensuring patient safety at community pharmacies. This study showed that factors such as the adequacy of vocational training received, the professional competence and experience

of pharmacy employees, the ability to perform teamwork well in many pharmacies, and the adequacy and equipment of the physical environment in pharmacies are effective in ensuring patient safety. As a result, it is thought that the perception of patient safety culture is high in the study group we surveyed. However, pharmacists were found to have higher perceptions of patient safety culture dimensions of "Communication and Operation Dimension" and "Information Sharing Between Shifts" compared to non-phaarmacist employees.

Since our study was limited to self-employed pharmacy employees working in Çankaya District of Ankara, Turkey, the capital of Turkey, conducting more comprehensive studies is expected to contribute to the literature. Future studies should also focus on the differences in the perception of patient safety culture among pharmacy employees in the community and the public sector.

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How cite this article

Appendix 1. Serbest Eczaneler İçin Hasta Güvenliği Kültürü Anketi

	Kesinlikle Katılmıyorum	Katılmıyorum	Ne Katılıyorum Ne De Katılmıyorum	Katılıyorum	Kesinlikle Katılıyorum	Cevap Vermek İstemiyorum Ya Da Cevabı Bilmiyorum
Bu eczanede çalışanlar rollerinin ve sorumluluklarının bilincindedirler.						
Bu eczanede çalışanlar işlerini iyi yapmak için gerekli yeteneğe sahiptirler.						
Bu eczanede çalışan eczane kalfaları işlerinde ne yapmaları gerektiğiyle alakalı gerekli eğitimleri almaktadır.						
Çalışanlar bir arada etkili birtakım olarak çalışmaktadır.						
Çalışanlar birbirine saygılı davranır.						
Bu eczane iyi şekilde organize olmuş durumdadır.						
Bu eczane dağınıklıktan uzaktır.						
Bu eczanede yeni işe başlamış çalışanların uyum sağlaması için yeterli destek sağlanmaktadır.						
Bu eczanenin fiziksel düzeni işlerin yapılmasını kolaylaştırmaktadır.						
Bu eczanede çalışanlar yeterli düzeyde eğitim almaktadırlar.						
Bu eczanede yapılan hataların tekrarlanmamasının yollarını aramızda konuşuruz.						
Reçetelerdeki problemler vardiya değişikliklerinde etkili şekilde aktarılmaktadır.						
İş yükünün paylaşılabilmesi için yeterli çalışana sahibiz.						

Appendix 1. Continued

	Asla	Nadiren	Bazen	Çoğu Zaman	Her Zaman	Cevap Vermek İstemiyorum Ya Da Cevabı
Vardiyaların değişimlerinde önemli bilgilerin diğer çalışanlara aktarılması konusunda açık beklentilerimiz bulunmaktadır						
Eczacılarımız hastalarla ilaçların nasıl kullanılması gerektiği hakkında konuşmak için gerekli zamanı harcamaktadır.						
Bu eczane çalışanları hasta güvenliği konularını üstleriyle rahatlıkla konuşabilmektedir.						
Bu eczane çalışanları hatalar üzerinde tartışmaktadır.						
Eczacılarımız hastaların reçetelerindeki yenilikler hakkındaki önemli bilgileri hastalara aktarmaktadır.						
Vardiyalar arasında önemli bilgilerin aktarılması konusunda standart prosedürlerimiz bulunmaktadır.						
Çalışanlar vardiyaları sırasında yeterli molayı alabilmektedirler.						
Hastaları, ilaçları hakkında eczacılarla konuşması için cesaretlendiririz						
Çalışanlar, emin olmadıkları herhangi bir konu hakkında soru sorarken rahat hissetmektedirler						
Bir hata oluştuğunda hangi problemlerin bu hataya yol açtığını bulmak için çaba gösteririz.						
Çalışanlara hata yapmaları durumunda adil davranılmaktadır.						
Bu eczane hataların engellenmesinde başarılıdır.						
Bu eczanede çalışanların hatalarından dolayı cezalandırılması yerine hatalarından ders çıkarmasına yardımcı olunmaktadır.						
Bu eczanede hatalar pozitif değişimlerin olmasına yol açmaktadır.						
Aynı hatalar oluşmaya devam ediyorsa işin yapılma şeklini değiştiririz.						
Bu eczanede oluşan hataların nedenini anlamak için çalışanların davranışlarına ve işleri halletme biçimimize bakarız.						
Bu eczanede işlerin yapılma şekli hasta güvenliğine etkili bir şekilde odaklanıldığını yansıtmaktadır.						